

SEQUENCE LISTING

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<120> Hepatitis C Virus NS3 Helicase Subdomain I

<130> ID01152 US

<140> US 09/825,423

<141> 2001-04-03

<150> US 60/194,419

<151> 2000-04-04

<160> 17

<170> PatentIn Ver. 2.1

<210> 1

<211> 631

<212> PRT

<213> Hepatitis C virus

<400> 1

Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly Leu Leu Gly Cys
1 5 10 15

Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu
20 25 30

Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys Ile
35 40 45

Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr Ile
50 55 60

Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp Gln
65 70 75 80

Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr Pro
85 90 95

Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp
100 105 110

Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser
115 120 125

Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu

130		135		140											
Cys 145	Pro	Ala	Gly	His	Ala 150	Val	Gly	Leu	Phe	Arg 155	Ala	Ala	Val	Cys	Thr 160
Arg	Gly	Val	Thr	Lys 165	Ala	Val	Asp	Phe	Ile 170	Pro	Val	Glu	Asn	Leu 175	Glu
Thr	Thr	Met	Arg 180	Ser	Pro	Val	Phe	Thr 185	Asp	Asn	Ser	Ser	Pro	Pro	Ala 190
Val	Pro	Gln 195	Ser	Phe	Gln	Val	Ala 200	His	Leu	His	Ala	Pro 205	Thr	Gly	Ser
Gly	Lys 210	Ser	Thr	Lys	Val	Pro 215	Ala	Ala	Tyr	Ala	Ala 220	Gln	Gly	Tyr	Lys
Val 225	Leu	Val	Leu	Asn	Pro 230	Ser	Val	Ala	Ala	Thr 235	Leu	Gly	Phe	Gly	Ala 240
Tyr	Met	Ser	Lys	Ala 245	His	Gly	Val	Asp	Pro 250	Asn	Ile	Arg	Thr	Gly	Val 255
Arg	Thr	Ile	Thr	Thr	Gly	Ser	Pro	Ile 265	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys 270
Phe	Leu	Ala 275	Asp	Gly	Gly	Cys	Ser 280	Gly	Gly	Ala	Tyr	Asp 285	Ile	Ile	Ile
Cys	Asp 290	Glu	Cys	His	Ser	Thr 295	Asp	Ala	Thr	Ser	Ile 300	Leu	Gly	Ile	Gly
Thr 305	Val	Leu	Asp	Gln	Ala 310	Glu	Thr	Ala	Gly	Ala 315	Arg	Leu	Val	Val	Leu 320
Ala	Thr	Ala	Thr	Pro 325	Pro	Gly	Ser	Val	Thr 330	Val	Pro	His	Pro	Asn	Ile 335
Glu	Glu	Val	Ala 340	Leu	Ser	Thr	Thr	Gly 345	Glu	Ile	Pro	Phe	Tyr	Gly	Lys 350
Ala	Ile	Pro 355	Leu	Glu	Val	Ile	Lys 360	Gly	Gly	Arg	His	Leu 365	Ile	Phe	Cys
His	Ser 370	Lys	Lys	Lys	Cys	Asp 375	Glu	Leu	Ala	Ala	Lys 380	Leu	Val	Ala	Leu
Gly 385	Ile	Asn	Ala	Val	Ala 390	Tyr	Tyr	Arg	Gly	Leu 395	Asp	Val	Ser	Val	Ile 400
Pro	Thr	Asn	Gly	Asp 405	Val	Val	Val	Val	Ala 410	Thr	Asp	Ala	Leu	Met	Thr 415
Gly	Phe	Thr	Gly 420	Asp	Phe	Asp	Ser	Val 425	Ile	Asp	Cys	Asn	Thr	Cys	Val 430

Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr
 435 440 445
 Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg
 450 455 460
 Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu
 465 470 475 480
 Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp
 485 490 495
 Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg
 500 505 510
 Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln Asp His
 515 520 525
 Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile Asp Ala
 530 535 540
 His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu Asn Phe Pro Tyr Leu
 545 550 555 560
 Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro
 565 570 575
 Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro Thr Leu
 580 585 590
 His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln Asn Glu
 595 600 605
 Val Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Thr Cys Met Ser
 610 615 620
 Ala Asp Leu Glu Val Val Thr
 625 630

<210> 2

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 2

Ser Asp Gly Lys

1

<210> 3

<211> 148
 <212> PRT
 <213> Hepatitis C virus

<400> 3

Gly	Ser	His	Met	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Ala
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Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser
			20					25					30		
Gly	Lys	Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys
		35					40					45			
Val	Leu	Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala
	50					55					60				
Tyr	Met	Ser	Lys	Ala	His	Gly	Val	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val
65					70					75					80
Arg	Thr	Ile	Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys
				85					90					95	
Phe	Leu	Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile
			100					105					110		
Cys	Asp	Glu	Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly
		115					120					125			
Thr	Val	Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu
	130					135					140				
Ala	Thr	Ala	Thr												
145															

<210> 4
 <211> 142
 <212> PRT
 <213> Hepatitis C virus

<400> 4

Gly	Ser	His	Met	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile	Glu	Glu
1				5					10					15	
Val	Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys	Ala	Ile
			20					25					30		
Pro	Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	His	Ser
		35				40						45			
Lys	Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Val	Ala	Leu	Gly	Ile
	50					55					60				
Asn	Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	Val	Ile	Pro	Thr

5

65					70						75				80
Asn	Gly	Asp	Val	Val	Val	Val	Ala	Thr	Asp	Ala	Leu	Met	Thr	Gly	Phe
				85					90					95	
Thr	Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Ser	Asp	Gly	Lys
			100					105					110		
Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg	Thr	Gly	Arg
		115					120					125			
Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu	Arg		
	130					135					140				

<210> 5
 <211> 288
 <212> PRT
 <213> Hepatitis C virus

<400> 5

Gly	Ser	His	Met	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Ala
1				5					10					15	
Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser
			20					25					30		
Gly	Lys	Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys
		35					40					45			
Val	Leu	Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala
	50					55					60				
Tyr	Met	Ser	Lys	Ala	His	Gly	Val	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val
	65				70					75					80
Arg	Thr	Ile	Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys
				85					90					95	
Phe	Leu	Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile
			100					105					110		
Cys	Asp	Glu	Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly
		115					120					125			
Thr	Val	Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu
	130					135					140				
Ala	Thr	Ala	Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile
	145				150					155					160
Glu	Glu	Val	Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys
			165					170						175	
Ala	Ile	Pro	Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys

			180					185					190			
His	Ser	Lys	Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Val	Ala	Leu	
		195					200					205				
Gly	Ile	Asn	Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	Val	Ile	
	210					215					220					
Pro	Thr	Asn	Gly	Asp	Val	Val	Val	Val	Ala	Thr	Asp	Ala	Leu	Met	Thr	
225					230					235					240	
Gly	Phe	Thr	Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Ser	Asp	
				245					250					255		
Gly	Lys	Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg	Thr	
			260					265					270			
Gly	Arg	Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu	Arg	
		275					280					285				

<210> 6
 <211> 241
 <212> PRT
 <213> Hepatitis C virus

<400> 6
 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
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 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
 20 25 30
 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
 35 40 45
 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
 50 55 60
 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
 65 70 75 80
 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
 85 90 95
 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
 100 105 110
 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
 115 120 125
 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu

130		135		140
Ala Thr Ala Thr Pro Pro Gly Ser Gly Met Phe Asp Ser Ser Val Leu				
145		150	155	160
Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala				
	165		170	175
Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro				
	180		185	190
Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu				
	195	200		205
Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu				
	210	215	220	
Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala				
225	230	235		240

Gln

<210> 7

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 7

Gln Gly Gly Ala

1

<210> 8

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 8

Arg Gly Ser Thr

1

<210> 9

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 9

Arg Gly Pro Gly

1

<210> 10

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 10

Ser Lys Gly Glu

1

<210> 11

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 11

Glu Gln Gly Ala

1

<210> 12

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 12

Arg Asn Asn Gln

1

<210> 13

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 13

Ala Asp Gly Ser

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<210> 14

<211> 4

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Mutated Hepatitis C virus peptide

<400> 14

Cys Asp Gly Leu

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<210> 15

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus primer

<400> 15

atcaggaccg ggggtggaaac aattaccact ggc

33

<210> 16

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mutated Hepatitis C virus primer

<400> 16

gccagtggta attgtttcca ccccggtcct gat

33

<210> 17

<211> 144

<212> PRT

<213> Hepatitis C virus

<400> 3

Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser

10

1	5	10	15												
Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys	Ser	Thr
		20						25					30		
Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	Val	Leu	Val	Leu
		35					40					45			
Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	Tyr	Met	Ser	Lys
	50					55					60				
Ala	His	Gly	Val	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val	Arg	Thr	Ile	Thr
65					70					75				80	
Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys	Phe	Leu	Ala	Asp
				85					90					95	
Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	Cys	Asp	Glu	Cys
			100					105					110		
His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly	Thr	Val	Leu	Asp
		115					120					125			
Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Ala	Thr	Ala	Thr
	130					135					140				